Subclinical thyroid condition associated with increased cardiovascular mortality

April 29 2013

Having high thyroid activity, and even "high-normal" levels, is a significant risk factor for cardiovascular and all-cause mortality, according to work which has received an award at the European Congress of Endocrinology in Copenhagen.

Subclinical hyperthyroidism is diagnosed when the levels of Thyroid Stimulating Hormone (TSH) are low, but the free hormones thyroxine (T4) and triiodothyronine (T3) are within normal range. You may have no symptoms at all, or symptoms such as the classical symptoms of an overactive thyroid - weight loss, higher blood pressure, nervousness, etc. These symptoms may be mild. TSH is produced as a signal from the pituitary gland to produce more thyroid hormones, so low TSH implies that the body sees that your thyroid is tending to overactivity.

Now a group of Danish researchers led by Dr Christian Selmer studied the thyroid test results of more than half a million individuals who underwent thyroid testing in Copenhagen between 2000 and 2009. They found that those with subclinical hyperthyroidism were significantly more likely to die from cardiovascular disease. They also found that even patients having only slightly elevated thyroid activity, but still within the range which would be considered normal, showed a tendency to higher cardiovascular and other mortality.

The group looked at the results of 574,595 patients who had undergone testing. 95.9% of these patients showed normal thyroid function. However 6,264 patients exhibited subclinical hyperthyroidism, 706 of

whom subsequently died of various causes. According to Christian Selmer:

"According to our work, 15% of deaths in the subclinical hyperthyroidism group could be attributed to the condition."

Even those at the high end of the normal range showed an increase in mortality. There were 13,434 patients in this range. 1,013 of these patients died of various causes, with 17% of the deaths associated with the thyroid condition. The authors emphasised that it is difficult to put exact numbers on the actual excess deaths caused by the condition for a variety of reasons. They state that they do not know if treatment of these conditions will in fact eliminate these excess deaths. This will be the goal of further studies.

Dr Christian Selmer, Research Fellow at Gentofte University Hospital, Denmark, and a winner of a Young Investigator Award at the European Congress of Endocrinology, said:

"Let's keep this in context. Of the more than half million people who were tested, 50,612 subsequently died from all causes. According to our figures, this includes around 278 deaths which can be attributed to the subclinical thyroid or "high-normal" conditions we looked at, but it is important to remember that this is a calculated figure; we can't point to an individual and say he or she died because of the condition, and subclinical hyperthyroidism is one of many risk factors. Nevertheless, this needs to be taken seriously. I think that the take-home message is that if a person has a family history with any thyroid problem, or has any signs of thyroid problems, then they should go for a check-up. More than that, their family doctors need to be aware that any sign of thyroid abnormality can affect cardiovascular health, and they should act accordingly".

More information: www.endocrine-abstracts.org/ea/0032/default.htm

Subclinical hyperthyroidism and risk of cardiovascular and all-cause mortality, Christian Selmer, Jonas Olesen, Jesper Madsen, Jens Faber, Peter Hansen, Ole Pedersen, Morten Hansen, Christian Torp-Pedersen, Gunnar Gislason

Background: It is still discussed if subclinical hyperthyroidism and "high-normal" thyroid function are risk-factors for cardiovascular mortality.
Objectives: To examine the risk of cardiovascular and all-cause mortality in relation to subclinical hyperthyroidism.
Methods: Patients consulting their general practitioner from 2000–2009 in Copenhagen, Denmark, who underwent thyroid blood tests, were identified by individual-level linkage of nationwide registries. Patients with a history of thyroid disease or related medication were excluded. Risk of cardiovascular mortality was analyzed using Kaplan-Meier curves and Poisson regression models were applied to estimate Incidence Rate Ratios (IRR).
Results: Of 574,595 included individuals (mean age 48.7 years [SD ±18.3]; 39.1% males) 550,927 (95.9%) were euthyroid, 1,603 (0.3%) had overt hypothyroidism, 11,834 (2.1%) subclinical hypothyroidism, 3,967 (0.7%) overt hyperthyroidism and 6,264 (1.1%) subclinical hyperthyroidism. Increased risk of cardiovascular mortality was found in two levels of subclinical hyperthyroidism (TSH